

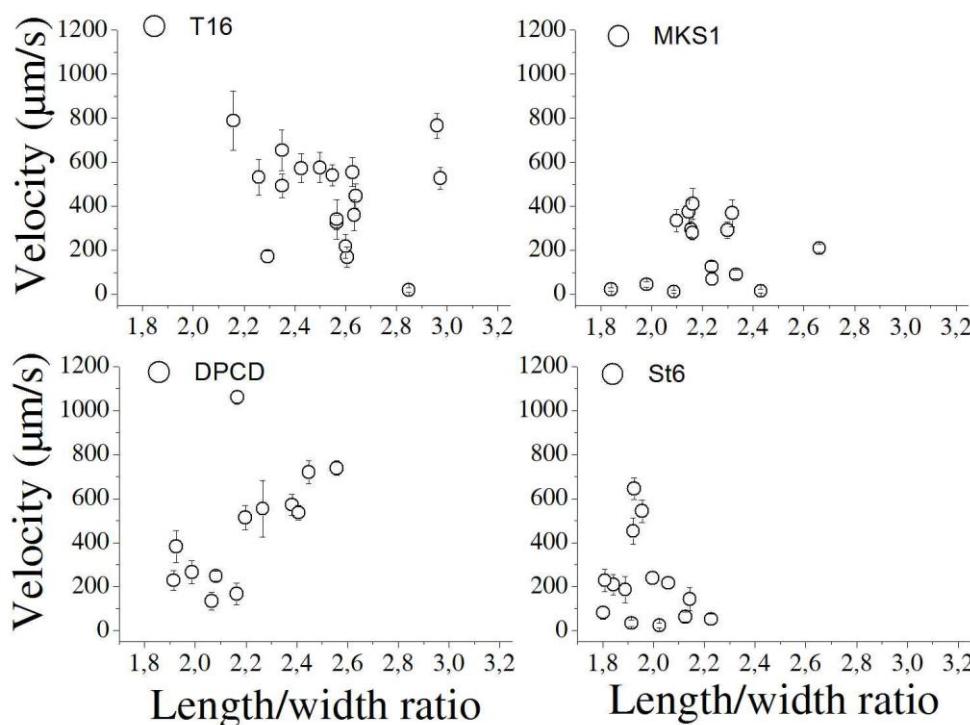
SUPPLEMENTARY MATERIAL

S1. Movie of an extracted cilia sequence.

S2. Movie of a control cell swimming in a microchannel.

S3. Movie of a “young” control cell swimming in a microchannel.

S4. Correlation plot of length/width ratio against velocity for all cell types.



S5. Movie of a T16 knock down cell swimming in a microchannel.

S6. Movie of a DPCD knock down cell swimming in a microchannel.

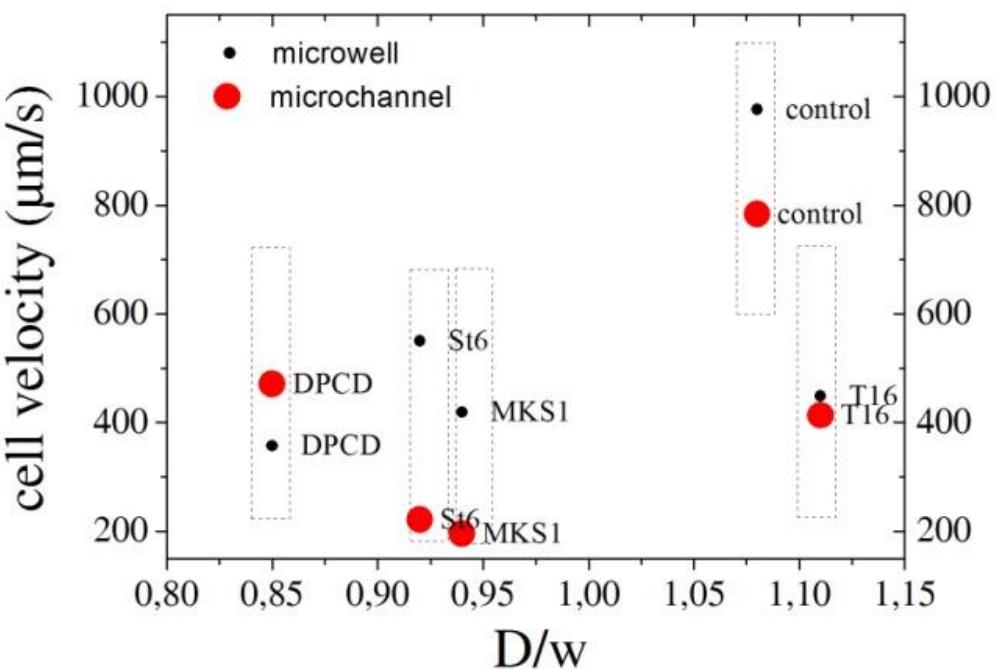
S7. Movie of a St6 knock down cell swimming in a microchannel.

S8. Movie of a MKS1 knock down cell swimming in a microchannel.

S9. Movie of a MKS1 knock down cell pushing into a maze-like microchannel wall.

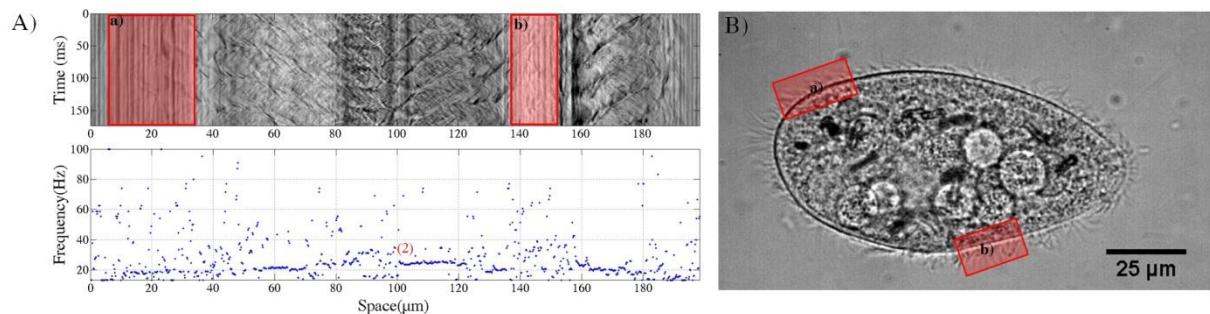
S10. Movie of a control cell turning in a maze-like microchannel.

S11. Cell velocity against D(depth channel)/w(width cell) ratio plot.

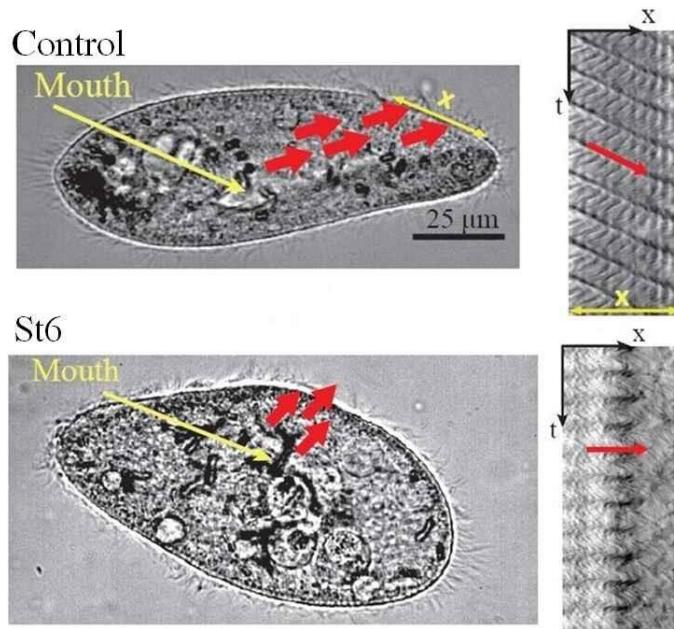


S12. Movie showing the microbead transport by the peristomeal cilia from the tip of the cell body towards the gullet of a control cell swimming in a microchannel.

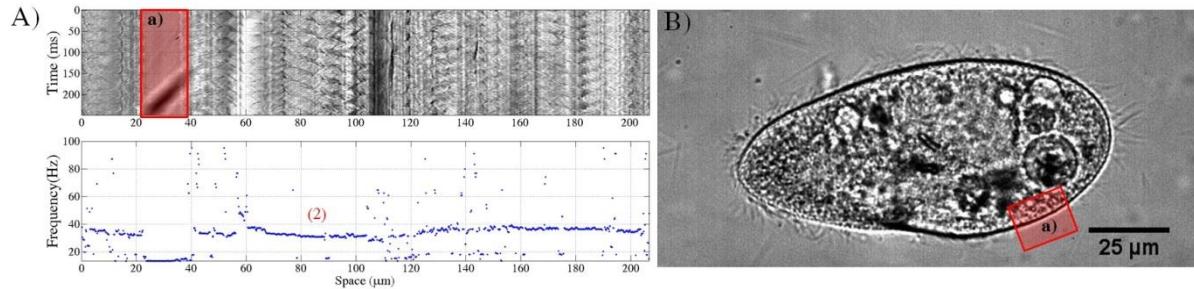
S13. Space-time diagram of a St6 cell (A) and image of a St6 cell (B) with partial inactive cilia.



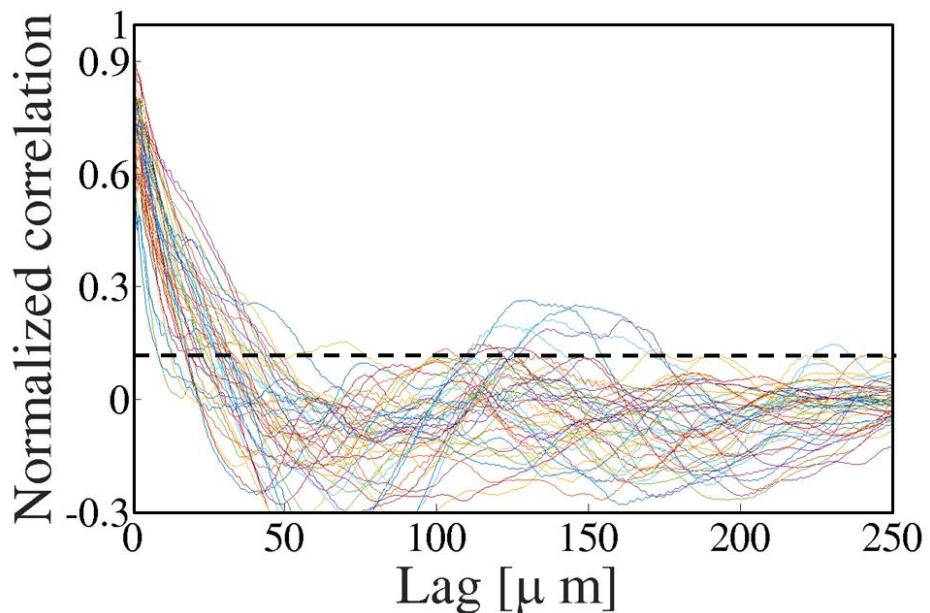
S14. Mouth wave direction (red arrows) and space-time diagram of the peristomeal region for a St6 knock down cell in comparison with a control cell.



S15. Space-time diagram of a MKS1 cell (A) and image of this MKS1 cell (B) partly lacking cilia.



S16. Spatial correlation coefficient (C) plot for the control. The correlation length L_C is extracted from each measurement for C crossing the value of 0.1 (dashed black line).



S17. Velocity against CBF mouth/peristomeal region correlation plot.

